

Claim Amendments

1-16 (canceled)

17. (currently amended) An apparatus for liquid treating and drying at least one flat semiconductor substrate, said apparatus comprising in combination:

a tank, said tank comprising a wall with at least one hole and comprising at least one opening in a top section of said tank, said opening allowing passage of said substrate in a direction parallel to the plane of said substrate, said tank on the outside further comprising a gutter and a drain, the gutter on at least a portion of the tank, the drain connected to said gutter;

means for moving said substrate into said tank; [[and]]

means for moving said substrate out of said tank through said opening in an essentially vertical direction; and

means for producing a flow of a gaseous substance through a narrow opening parallel to said substrate, said flow being directed at least one intersection line between a substrate and a liquid present in said tank, as said substrate is moved out of said tank through said opening, said flow having essentially the same speed and pressure in every point of said narrow opening.

18. (canceled)

19. (original) An apparatus according to claim 17, wherein one substrate is treated; wherein the sides of said opening are parallel to said substrate; and wherein the width of said opening is at least twice the thickness of said substrate.

McDonnell Boehnen Hulbert & Berghoff LLP
300 South Wacker Drive
Chicago, Illinois 60606
(312) 913-0001

20. (original) An apparatus according to claim 17, wherein the means for moving said substrate into said tank and the means for moving said substrate out of said tank through said opening include a support and at least one gripper.

21. (original) An apparatus according to claim 17, wherein the gutter surrounds the tank.

22. (currently amended) An apparatus for liquid treating and drying at least one flat semiconductor substrate, said apparatus comprising in combination:

a tank, said tank comprising in its wall at least one hole and comprising at least one opening in a top section of said tank, said opening allowing the passage of said substrate in a direction parallel to the plane of said substrate, said tank on the outside further comprising a gutter and a drain, the gutter on at least a portion of the tank, the drain connected to said gutter;

means for moving said substrate into said tank; [[and]]

means for moving said substrate out of said tank through said opening in an essentially vertical direction; and

means for directing a heat supply to at least one intersection line between said substrate and a liquid present in said tank, as said substrate is moved out of said tank through said opening, said heat supply having essentially the same intensity in every point along a line which is parallel to said substrate.

23. (canceled)

McDonnell Boehnen Hulbert & Berghoff LLP
300 South Wacker Drive
Chicago, Illinois 60606
(312) 913-0001

24. (currently amended) An apparatus according to claim 22, wherein one substrate is treated; wherein the sides of said opening are parallel to said substrate; and wherein the width of said opening is at least twice the thickness of said substrate.

25. (currently amended) An apparatus ~~according to claim 24,~~ for liquid treating and drying at least one flat semiconductor substrate, said apparatus comprising in combination:
a tank, said tank comprising in its wall at least one hole and comprising at least one opening in a top section of said tank, said opening allowing the passage of said substrate in a direction parallel to the plane of said substrate, said tank on the outside further comprising a gutter and a drain, the gutter on at least a portion of the tank, the drain connected to said gutter;
means for moving said substrate into said tank; and
means for moving said substrate out of said tank through said opening in an essentially vertical direction; wherein one substrate is treated; wherein the sides of said opening are parallel to said substrate; wherein the width of said opening is at least twice the thickness of said substrate;
wherein the top section of the tank forms a converging channel; and wherein a liquid may flow out of the tank and towards said opening.

26. (currently amended) An apparatus according to claim 25, ~~wherein said means for directing a flow of gaseous substance comprises~~ further comprising at least one nozzle producing said a flow of gaseous substance through a narrow slit which is parallel to the substrate surfaces and

whose length is at least equal to that of ~~said~~ an intersection line between said substrate and a liquid present in the tank.

27. (currently amended) An apparatus according to claim 25, ~~wherein said means for directing a flow of gaseous substance comprises~~ further comprising a container placed above said tank, said container comprising an opening at its bottom so that a substrate can move along a straight line from said tank to said container through said openings, said container further comprising at least one inlet opening for letting in a flow of a gaseous substance.

28. (original) An apparatus according to claim 27, wherein said opening of said container faces said opening of said tank.

29. (original) An apparatus according to claim 27, wherein a first gaseous substance is introduced in said container through at least one first hole in the top part of said container,

wherein a second gaseous substance is introduced through at least one long and narrow opening in the lower part of at least one side wall of said container, said long and narrow opening being in the direction of the tank, and

wherein a part of the container under said at least one long and narrow opening forms a channel with a converging width, as seen in a cross section perpendicular to the center line of the openings through which the substrate moves.

McDonnell Boehnen Hulbert & Berghoff LLP
300 South Wacker Drive
Chicago, Illinois 60606
(312) 913-0001

30. (currently amended) An apparatus according to claim 29, further comprising an exhaust channel for removing said gaseous substance from ~~said an~~ intersection line between said substrate and said liquid.

31. (original) An apparatus according to claim 30, wherein sides of said exhaust channel are sealed off from the surrounding atmosphere.

32. (original) An apparatus according to claim 22, wherein the gutter surrounds the tank.

33. (withdrawn) An apparatus for treating and drying a flexible substrate according to the method of claim 1, said apparatus comprising a tank, said tank comprises at least one transporting device for transporting said flexible substrate through a liquid inside said tank.

34. (withdrawn) An apparatus according to claim 33, wherein said substrate is chosen from the group consisting of a film, a foil, a tape, a wire, and a plurality of parallel wires.

35. (currently amended) ~~An apparatus for treating and drying a batch of parallel flat substrates according to the method of claim 1, comprising a tank, at least one gutter, and at least one drain~~ The apparatus according to claim 25, wherein said liquid flows out of said tank only between the short edges of said substrates and the neighboring sides of said tank.

McDonnell Boehnen Hulbert & Berghoff LLP
300 South Wacker Drive
Chicago, Illinois 60606
(312) 913-0001

36. (original) An apparatus according to claim 35, further comprising means for removing a last droplet attached to the last part of said substrate that leaves said liquid, said means for removing a last droplet being chosen from the group consisting of at least one fiber attached to the top part of said tank and at least one piece of foam attached to the top part of said tank.

37. (original) An apparatus according to claim 36, wherein movement of said means for removing a last droplet is controlled.

McDonnell Boehnen Hulbert & Berghoff LLP
300 South Wacker Drive
Chicago, Illinois 60606
(312) 913-0001